

S. F. Glassman

Professor of Biological Sciences, University of Illinois,
Chicago Circle, and Research Associate in Palms, Field Museum,
Chicago.

The genus Maximiliana was erected by Martius (1824). No species were described in this article, but in 1826 he established M. regia and M. insignis, and in 1844, M. crassispatha. Other taxa of Maximiliana were described or transferred from other genera to Maximiliana by Karsten (1857), Grisebach and Wendland (1864), Spruce (1871), Barbosa Rodrigues (1875, 1891), Wendland (1878), Drude (1881), and Burret (1929).

Kuntze (1891) established the genus Englerophoenix as a new name for Maximiliana Mart. 1824 which was published as a homonym for Maximilianeae Mart. in Schrank, 1819 (Cochlospermaceae). Maximiliana Mart. 1824 was later given conserved name status (see Stafleu et al, 1972), nevertheless some authors (Barbosa Rodrigues, 1903 and Bondar 1938, unpubl. ms.) still considered Englerophoenix as a distinct genus from Maximiliana.

Drude (1881) divided Maximiliana into section Eumaximiliana (including M. maripa and M. regia) and section Scheelea (including M. insignis and M. tetrasticha), based on whether the stamens were longer or shorter than the petals of the male flowers. In other words, Drude did not recognize Scheelea as a distinct genus. Barbosa Rodrigues (1903) recognized two sections (Inaya and Inayay) under Englerophoenix, based mainly on the presence or absence of trunks. The most extensive study of Maximiliana was by Burret (1929) in which he also treated Attalea, Orbignya and Scheelea in the same article. He keyed out nine species of Maximiliana in two sections, Exanthera and Cryptanthera, distinguished by having anthers extending considerably beyond the petals of the flower rather than anthers included in the petals or scarcely longer than the petals. At the same time, he rejected the two sections of Barbosa Rodrigues because they did not indicate a natural relationship. Burret believed that the ratio of the length of the stamens to the petals was not important a distinguishing characteristic as the germ pore of the endocarp having an operculum and the endocarp lacking fibers. In a key to the Coccoideae, Burret (1953) distinguished Maximiliana from Attalea, Scheelea (and Orbignya) by the endocarp being thin

*This research has been supported by NSF grant BMS 75 09779.

rather than thick at the location of the embryo pore, embryo pore covered with an operculum v.s. no operculum, mesocarp with very thin rather than coarse fibers, and endocarp lacking fibers rather than presence of fibers.

Wessels Boer (1965, 1972) treated all species of Maximiliana, as well as other closely related genera (Attalea, Orbigyua, Scheelea, Parascheelea and Markleya), as part of the genus Attalea, sensu lato. Glassman (1977a, 1977b, 1977c) published preliminary taxonomic studies of the above genera, and also included a discussion and key to all six genera in the first article (1977a). As previously mentioned in my three articles above, taxonomic studies in the Attalea complex is a difficult undertaking because type specimens are frequently fragmentary or lacking, few additional collections have been made for a number of species, and because descriptions and illustrations for a number of taxa are inadequate for detailed monographic studies.

The following is a description of the genus Maximiliana: Trees with upright or decumbent trunks, 5-24 m tall and 0.3-1 m in diam., trunks mostly smooth and with obscure leaf scars; leaves usually very long (averaging 5-10 m), pinnately compound, leaf base (sheath) and petiole frequently not clearly separated, 1.5-3 m long, petiole with fibrous margins, rachis 3.5-7 m long, with 140-260 pairs of pinnae; middle pinnae mostly in clusters of 2-5; plants monoecious, flowers unisexual, both male and androgynous spathes woody and deeply sulcate, usually terminating in a fairly long umbo; androgynous spadices usually with many rachillae, each rachilla with 3-12 female flowers along basal part forming triads with two male flowers, the terminal part becoming slender, bearing only male flowers which are frequently sterile; female flowers 2.0-3.5 cm long, subtended by two bracts, with 3 subequal or equal convex imbricate sepals and 3 similar petals, pistil with a well developed staminodial ring surrounding the ovary, carpels 3, fused, stigmas 3, style short or absent; male spadices with numerous rachillae, male flowers usually spirally arranged around rachillae; male flowers with 3 very short sepals, 3 longer petals which are more or less flattened, 3-8 mm long, stamens always 6, usually exerted from petals, filaments 3-4 mm long, anthers straight, 5-10 mm long; fruits ovoid-oblong with a long terminal beak, 5-8 cm long and 2-3 cm in diam, 1-3 seeded, exocarp coarsely fibrous, mesocarp mostly pulpy, with occasional fibers, endocarp stony, usually more than twice as thick as exocarp and mesocarp combined, fiber clusters usually absent or with few scattered fibers, persistent perianth and staminodial ring enlarged in fruit, seeds conforming to size and shape of locules, germ pores with superficial lids (opercula), not covered by fibers.

A total of 16 species have been described or transferred under the name Maximiliana. Of this number, I am only recognizing 2 "good" species (including 7 reduced to synonymy), 5 taxa belong to other genera (excluded species), and the remaining 2 taxa are considered to be a confused species and a nomen nudum.

The following key is based on specimens examined plus descriptions and illustrations. Subsequent to the species key, each of the three categories of species mentioned above are arranged alphabetically with the author and original place of publication. Sometimes, other pertinent articles are also listed. Complete citations of most of these plus other articles mentioned in the text are listed under LITERATURE CITED at the end. Pertinent synonyms are also listed. The type of each species, when known, is listed and is then followed by a list of cited specimens examined by the author. Holotypes, isotypes and lectotypes are specifically listed as such; however, when its status is uncertain it is merely called "type". For each specimen, collector's name and collecting number is followed by a symbol of the herbarium where the collection is deposited. Abbreviations of herbaria used here are those listed in "Index Herbariorum" by Holmgren and Keuken (1974).

Key to Species of Maximiliana

1. Petals of male flowers 2-7 mm long, anthers 7-10 mm long..... M. martiana
1. Petals of male flowers 7-8 mm long, anthers 3.5-7mm long.....M. macropetala

MAXIMILIANA Mart., Palm Fam. 20, 1824 (conserved name). Maximiliana Mart, in Schrank, Flora 2: 452. 1819 (Cochlospermaceae). Maximiliana sect. Eumaximiliana Drude, 1881; sect. Exanthera Burret and sect. Cryptanthera Burret, 1929; Englerophoenix Kuntze, 1891, 1898; Englerophoenix sect. Inaya Barb. Rodr. and sect. Inayay Barb. Rodr., 1903.

List of Species

- M. macropetala Burret, Notizbl. 10: 699, 1929; Attalea macropetala (Burret) Wessels Boer, Indig. Palms Surname 155. 1965.
Holotype: Venezuelan Guiana: Rosalia (Passarge 63-B, destroyed).
Specimens examined: Doubtful. Surinam, Paloemeu R. near confluence with Tapanahony R., in forest, Wessels Boer 1330 (U); Coppename R., above Bolletrie Fall, loamy sand overhanging water, Wessels Boer 1371 (U).

Vernacular names: Baba Maripa (Surinam); Cucurito, Palma de Agua (Venezuela).

Distribution: Venezuela and Surinam

Burret's original description was based mainly on two rachillae with male flowers. The stamens were described as being slightly longer than the petals. Wessels Boer (1965) cited the two Surinam specimens above as belonging to *M. macropetala*.

Wessels Boer 1371 has stamens longer than the petals which are flattened, whereas 1330 has stamens shorter than the petals which are plano-convex and fleshy. In fact, Wessels Boer said this species is intermediate between Scheelea and Maximiliana, because of the relative size of the stamens and petals. In 1972 (unpublished ms.), Wessels Boer could not correlate any Venezuelan collections with Burret's original description of *M. macropetala*. He said that the two collections from Surinam (cited above) were arbitrarily identified with this taxon, but that some doubt still remained about their identification. It is my opinion that Wessels Boer 1371 probably belongs to this species because the male flowers match Burret's description fairly closely; but 1330 should probably be excluded because the male flowers are closer to a species of Scheelea. Perhaps, *M. macropetala* should be relegated to species dubium because of the absence of a type specimen and because of an inadequate description based almost entirely on male flowers and rachillae. I prefer to delay that decision, however, in the hope that additional collections eventually will be made from the type locality.

M. martiana Karsten, Linnaea 28: 273. 1857.

M. regia Mart., Hist. Nat. Palm. 2: 132, t. 91-93. 1826; Wallace, t. 47, 1853; Dahlgren, pl. 326-327. 1959; homonym for *M. regia* Mart. in Schrank, 1819. Englerophoenix regia (Mart.), Kuntze, Rev. Gen. Plant. 2: 728. 1891; Attalea regia (Mart.) Wessels Boer, Indig. Palms Suriname. 150. 1965.

Lectotype: Brazil, prov. Maranhão and Pará (Martius s.n. -M) c.f. Dahlgren, pl. 327. 1959.

M. elegans Karsten, Linnaea 28: 271. 1857; Dugand, Caldasia 2: 451-454, 4 figs. 1944; 1955.

Type: Flat, humid forest regions of Orinoco and confluence of Maranhão (no specimens cited).

M. caribaea Griseb. and Wendl. ex Griseb., Fl. Brit. West Ind. 522, 1864; Englerophoenix caribaea (Griseb. and Wendl.) Kuntze, Rev. Gen. Plant. 2: 728. 1891.

Type: Trinidad (Crueger-K destroyed?).

M. maripa (Correa de Serra) Drude, Mart. Fl. Bras. 3: 452, t. 104. 1881; Palma maripa Correa de Serra, Ann. Mus. Hist. Nat. Paris 8: 75. 1806: Attalea maripa (Correa de Serra) Mart., Palmet. Orbign. 123. 1844; t. 167, fig. 3.

1845; Englerophoenix maripa (Correa de Serra) Kuntze, Rev. Gen. Pl. 2: 728. 1891.

Type: French Guiana (no specimens cited).

M. longirostrata Barb. Rodr., Vellozia 1 ed. 2: 112, t. 2. 1891; Englerophoenix longirostrata (Barb. Rodr.) Barb. Rodr., Sert. Palm. Bras. 1: 77, t. 60B. 1903.

Lectotype: Brazil, Manaos (t. 2, 1891).

M. macrogyne Burret, Notizbl. 10: 692. 1929.

Holotype: Brazil, Maranhão, by Tury-assu, Capoeira (Snethlage 279-B, destroyed)

M. stenocarpa Burret, Notizbl. 10: 696. 1929.

Holotype: Peru, Upper Amazon, Iquitos (Tessmann 5081-B, destroyed); lectotype: (Tessmann 5081-NY).

Specimens examined: Brazil, prov. Maranhão and Pará, Martius s.n. (M, lectotype of M. martiana); Pará, Martius s.n. (M); Pará, Souza, Belém, Dahlgren s.n. (F-619728); Rio Guama, near Belém, Dahlgren and Sella 699 (F); São Luiz, Dahlgren s.n. (F-615319); São Luiz, Tapajoz, J. Kuhlmann 1918 (RB); state of Amazonas, municip. of Humayta, betw. Rio Livramento and Rio Ipixuna, Krukoff 7065 (A, BR, F, G, NY); Amazonas, secondary growth, 18 km N. of Manaus, H. E. Moore et al 9524 (NY); Mato Grosso, Machado, Angustura, lowland of Terra Firma, Krukoff 1601 (F-620733), 1602 (F-620734). British Guiana, Corentyne R., Jenman 527 (NY). French Guiana, 1819-1821, M. Poiteau s.n. (G). Surinam, S. of Paramaribo, along road to Zanderij, Wessels Boer 288 (U); Arrawara Monding, Wessels Boer 345, 347 (U); Attobaka, Wessels Boer 357 (U); Palomeu R., near confl. with Tapanohony R., Wessels Boer 1329 (U). Venezuela, Terr. Amazonas, along road from Puerto Ayacucho to Sanariapo, savannas, Wessels Boer 1920 (U); Cerro Duida, along Caño Negro, forest at base of slopes, Steyermark 58064 (F); Estado Monagas, Reserva Forestal de Guarapiche, rain forest, Wessels Boer 1821 (U); Est. Bolivar, San Mateo, Bajo Paragua, L. Williams 12816 (F); at base of Altiplanicie de Nuria, Steyermark 88912 (NY); Lower Orinoco, Catalina, Rusby and Squires 413 (A, F, G, GH, NY). Colombia, Prov. Bogotá, Villavicencio, Triana 734 (P); Triana 1776-1 (COL); Vaupes, Mitu, interior forest, Cuatrecasas 6941 (COL); Comisaria del Caqueta, Florencia, en los cerros La Estrella, Cuatrecasas 8870 (COL). Peru, upper Amazon, Iquitos, Tessmann 5081 (NY, lectotype of M. stenocarpa); Iquitos, Tessmann 5078 (B). Trinidad, Teteron Bay, wooded hillside, Britton 494 (GH, NY, US). CULTIVATED: Brazil, Rio de Janeiro, Quinta de São Christovão, Glaziou 10112 (P); Jardim Botânico, Rio de Janeiro, Dahlgren s.n. (F-611654); Museu Goeldi, Belém, Dahlgren s.n. (F-620812);

British Guiana, Georgetown Botanic Gardens, Dahlgren s.n. (F-610617, F-610752, F-610841); Singapore, Botanic Garden, C. X. Furtado s.n. (NY).

Vernacular names: Inaja, Cocorito, Pirina (Brazil); Maripa, Kokelite, Koeroeliti (Guianas and Surinam); Guajo, Guichire, Huichire, Indaya (Colombia); Inayuca (Peru); Cucurito (Venezuela).

Distribution: Mostly in wet forests and savannas, especially in the Amazon region, of Brazil, Guianas, Surinam, Venezuela, Colombia and Peru.

Maximiliana martiana was published by Karsten as a new name to replace M. regia Mart., 1826, a homonym for M. regia Mart., 1819. No specimens were cited by Martius (1826), but he listed the following locality data for Brazil: Prov. Maranhaniensis et Paraensis. The above cited specimen figured in plate 327 of Dahlgren (1959), was chosen as the lectotype (contains male rachillae and male flowers) because both Maranhon and Pará are inscribed on the label; whereas in the specimen figured in plate 326 (leaf material only), only Pará is written on the label.

Burret (1929) recognized M. elegans, M. maripa, M. longirostrata, M. macrogyne, M. regia, and M. stenocarpa as separate taxa, but M. caribaea was reduced to synonymy. He distinguished the above species by the following key:

1. Filaments somewhat shorter than the petals, anthers 1/3 to 1/2 included in petals, perianth about 1/2 the length of the fruit..... M. maripa
1. Filaments as long as or longer than the petals
 2. Female flowers oblong, petals about 1/3 longer than sepals.
 3. About 7 female flowers per rachilla
 4. Perianth about 1/2 the height of the fruit..... M. longirostrata
 4. Perianth about 1/3 the height of the fruit..... M. elegans
 3. About 1-4 female flowers per rachilla
 - M. macrogyne
 2. Female flowers elliptical, petals about as long as the sepals or slightly longer

5. About 1-4 female flowers per
rachilla..... M. regia
5. About 7 female flowers per
rachilla..... M. stenocarpa

Wessels Boer (1965), however, reduced the above species to Attalea regia, and later (1972) to A. maripa. At present, I am inclined to follow Wessels Boer in this treatment (but, M. martiana is the earliest valid name) because at present, I can find no significant differences between the species recognized by Burret.

Claassen et al (1949) reported M. caribaea, M. regia, M. elegans and M. macropetala from Venezuela, and showed the distribution of all four species within the country on a map (fig 24). The first taxon was collected from Capicho, state of Monagas and M. elegans was collected by the Cuchivero River near Rosalia, but no specimens were cited. Neither M. macropetala nor M. regia were collected by the FAO mission. The first species is listed only from the type locality, Rosalia; but the distribution of M. regia is given as follows: throughout the valley of the Orinoco and several tributaries with large numbers in the Gulf of Paria; and occurring in the same habitats as Scheelea macrolepis from which it is difficult to distinguish by aerial photos. An estimated one million or more trees of M. regia in an area of 232 sq. km in British Guiana was also reported.

According to Dugand (1944), the type locality of M. elegans is more specifically in the llanos of Meta or "San Martín". In descriptions of other species, Karsten used similar phrases (flat humid forest regions of Orinoco and confluence of Mara-ñon) in referring to the eastern llanuras of Colombia crossing through the tributaries of the Orinoco and the Mara-ñon (=Amazonas). In 1853, Karsten collected in the llanos of Meta or "San Martín", in the vicinity of Villavicencio, Apiay, Jiramena, San Martín, banks of Rio Negro and Rio Meta and other localities. These places are not situated only in the llanos mentioned above, but also in the hills and valleys of the Cordillera Oriental. At present, M. elegans is abundant in the gallery forest that borders the Meta and Guaviare rivers, and cane fields of the llanos (Dugand, 1944). He cites Triana 1776-1, Jan., 1856, Villavicencio (COL), as corresponding perfectly with Karsten's description. Dugand (1944, 1955) refers to this specimen as well as others he collected from Meta as toptypes.

In his Cultivated palms of Venezuela, Braun (1968) distinguished M. elegans from M. martiana in its stiffer and erect

rather than drooping foliage. Apparently, neither species have been cultivated in the Caracas area. Braun says that both species are frequent trees in the vast Orinoco region, and are common in the forests of Guayana, as well as open ground in the upper Orinoco region (e.g. fig 64, M. martiana, in the vast savanna near Carmelitas, Rio Ventauri, Amazon Territory).

Excluded Species

- M. crassispatha Mart., Palmet, Orbign. 110. 1844. Attalea crassispatha (Mart) Burret, Sv. Vet. Akad. Handl. 6: 23, t. 8-11. 1929.
Lectotype: Haiti (Plumier, Nov. Pl. Amer. Gen. t. 1. 1703).

Male flowers of this taxon have coiled and twisted anthers and fleshy, curved petals, placing it near the genus Orbignya or Parascheelea. For a more detailed discussion see Glassman (1977a) and (1977b).

- M. inajai Spruce, Journ. Linn Soc. 11.163. 1871.
= Syagrus inajai (Spruce) Becc., L'Agri. Colon. 10: 467, 1916.
Holotype: Brazil, Amazonas, Rio Negro (Spruce 83-K).

This distinct species of Syagrus is fairly common in the rain forest regions of Brazil, Colombia, Surinam and French Guiana.

- M. tetrasticha Drude, Mart. Fl. Bras. 3: 455. 1881.
Scheelea tetrasticha (Drude) Burret, Notizbl. 10: 667, 1929.
Holotype: Brazil, Rio Tocantinis and Rio Araguaya Weddell 2331-P).

Male flowers in this species are definitely characteristic of Scheelea. See Glassman (1977c) for further discussion.

- M. venatorum (Poeppig ex Mart.) Wendl. in Kerchove Palm. 251. 1878; Burret, 1929; Dahlgren, pl. 328. 1959. Cocos venatorum Poeppig ex Mart., Hist. Nat. Palm. 3: 325. 1853.
Holotype: Peru, Tocache (Poeppig 1998-W, destroyed);
Lectotype: Maynas alto (Poeppig 1998-P).

Poeppig 1998 was cited by Poeppig in the original article (1853). The holotype from Vienna, illustrated by Dahlgren, pl. 328 (1959), was probably destroyed during World War II; hence the Paris specimen was chosen as lectotype. I am excluding this taxon from Maximiliana because the type specimens resemble a species of Oenocarpus or Euterpe; the single rachilla and male flowers definitely do not belong to any member of the Attalea alliance.

Species Confusum
and
Nomen Nudum

Maximiliana attaleoides Barb. Rodr., Enum Palm. Nov. 41.

1875. Englerophoenix attaleoides (Barb. Rodr.) Barb. Rodr., Sert. Palm. Bras. 1: 76, t. 60A. 1903. Attalea attaleoides (Barb. Rodr.) Wessels Boer, Indig. Palms Suriname 157. 1965.

Lectotype: Brazil, Pará, below Mt. Curumu, near Rio Trombetas and by Ikuypeua near Alenquer (t. 60A, 1903); c.f. Wessels Boer 1965, p. 157.

Attalea transitiva Barb. Rodr., Prot. App. 49, 1879.

Superfluous name. c.f. Glassman 1977, p. 55.

Specimens examined: Doubtful. Surinam; Eindkamp, Lucierivier, Exp. naar het Wilhelminageberge, Stahel 295 (U-6935); Tapanehorng, Wessels Boer 1204 (U); betw. Rechter Copperame R. and Emma Range, Wessels Boer 1430 (U).

Vernacular name: Curua-iquira, Pinaua-inkyra (Brazil).

Barbosa Rodrigues (1875) cited B.R. 355 for this species, but this particular specimen was probably destroyed. Hence, t. 60A was chosen as the lectotype.

From the outset, Barbosa Rodrigues was not certain of the status of this taxon. In 1879 he changed its name to Attalea transitiva because he thought it was a transitional species between Maximiliana and Attalea. In 1903, he transferred M. attaleoides to the genus Englerophoenix, commenting that this taxon was transitional between Attalea and Englerophoenix. The genus Englerophoenix was established by Kuntze in 1893 as a new name for Maximiliana Mart., 1824 which was published as a homonym for Maximiliana Mart. in Schrank, 1819 (Cochlospermaceae). In Briquet et al (1912), Cochlospermum Kunth, 1822 was conserved over Maximiliana Mart. in Schrank 1819, thus paving the way for conserving the name Maximiliana Mart. 1824 in the Palmae (see Stafleu et al, 1972). Some authors (e.g., Bondar, unpublished manuscript on Bahian species of Attalea dated 1938), nevertheless believed that Englerophoenix was a distinct genus, differing from Maximiliana mainly in the pulpy-mucilaginous mesocarp rather than a fibrous-mealy or fibrous-gummy mesocarp.

Wessels Boer (1965) has the following to say about this taxon: "Suriname specimens are somewhat doubtfully referred to the species of Barbosa Rodrigues, as there is a discrepancy in the arrangement of the pinnae. According to his description, the pinnae are clustered and the Surinam specimens have regularly pinnate leaves." In absence of type specimens, Wessels Boer chose t. 60A as the lectotype which shows a leaf part with

three pairs of non-clustered pinnae. He concluded that the description of the leaf was wrong and that the Surinam and Brazilian plants were probably conspecific. Because of its typical Scheelea flowers and typical Maximiliana fruits, this species could not be satisfactorily placed in either genus and hence supports the idea of one large genus, Attalea.

According to my current concept, M. attaleoides belongs in the genus Scheelea because the male flowers have fleshy petals which are longer (10 mm) than the stamens (7 mm). In that case, a new name would be required because Scheelea attaleoides Karsten already exists. In view of the fact that no authentic specimens are available for study and the pinnae description is uncertain and confusing, I prefer to designate this taxon as a species confusum. In both 1875 and 1903, Barbosa Rodrigues described the middle pinnae as aggregate, while the illustration (t. 60A) shows separate pinnae (but the pinnae shown may not necessarily be from the middle of the leaf).

M. jagua Seeman ex Wendl. in Kerchove, Palm. 251. 1878.

This name was published without an accompanying description. Apparently, it was based on a vernacular name, "Palma Jagua," published in one of Seeman's books or articles. It was subsequently listed in Linden (1881), Burret (1929), Dahlgren (1936) and Glassman (1972). Burret thought the name may refer to Scheelea humboldtiana (Spruce) Burret because Palma Jagua is one of its vernacular names. Nevertheless, Maximiliana jagua is clearly a nomen nudum according to the International Code of Botanical Nomenclature because a description was never published.

LITERATURE CITED

- Barbosa Rodrigues, J. 1875. Enumeratio Palmarum Novarum quas Valle Fluminis Amazonum. pp. 1-43. Rio de Janeiro.
1879. Protesto-Appendice ao Enumeratio Palmarum Novarum. pp. 1-48, 2 plates. Rio de Janeiro.
1891. Palmae Amazonenses Novae. Vellozia 2: 91-112.
1903. Sertum Palmarum Brasiliensium, ou Relation des Palmiers Nouveaux du Bresil 1: 1-140, 91 plates; 2: 1-114, 83 plates. Bruxelles.
- Bondar, G. 1938. (Unpublished ms.) Palmeiras Bahianas do Genero Attalea. Seu Aproveitamento Economico e Descripção de 4 Especies Novas.

- Braun, A. 1968. Cultivated Palms of Venezuela. Principes 12: 117-118, figs. 63-65.
- Briquet, J. et al. 1912. International Rules of Botanical Nomenclature Adopted by the International Botanical Congresses of Vienna 1905 and Brussels 1910. 110 pp. Jena.
- Burret, M. 1929. Die Palmengattungen Orbignya, Attalea, Scheelea und Maximiliana. Notizblatt 10: 493-543, 651-701.
1953. Systematische Übersicht die Gruppen der Palmen. Willdenowia 1: 57-74.
- Claassen, C. E., D. W. Jenkins and K. S. Markley. 1949. FAO Oilseed Mission in Venezuela. pp. 35-44, figs. 13-20. Food and Agric. Organiz. of U. N., Washington.
- Dahlgren, B. E. 1936. Index of American Palms. Field Mus. Nat. Hist. Bot. 14: 1-438.
1959. Index of American Palms. Plates. Field Mus. Nat. Hist. Bot. 14: pls. 1-412.
- Drude, O. 1881. Palmae in Martius, Flora Brasiliensis 3: 254-460.
- Dugand, A. 1944. Palmas Nuevas o Criticas Colombianas II, Caldasia 2: 451,454, 4 figs.
1955. Palmas Neuvas y Notables de Colombia II. Caldasia 7: 129-157.
- Glassman, S. F. 1972. A Revision of B. E. Dahlgren's Index of American Palms. 294 pp. J. Cramer, Lehre, Germany.
- 1977a. Preliminary Taxonomic Studies in the Palm Genus Attalea H. B. K. Fieldiana Bot. 38: 31-61.
- 1977b. Preliminary Taxonomic Studies in the Palm Genus Orbignya Mart. Phytologia 36: 89-115.
- 1977c. Preliminary Taxonomic Studies in the Palm Genus Scheelea Karsten. Phytologia 37: 219-250.
- Grisebach, A. 1864. Flora of the British West Indian Islands. pp. 513-523. London.

- Holmgren, P. and W. Keuken. 1974. Index Herbariorum. Part I. Herbaria of the World. Sixth Ed. 397 pp. Utrecht.
- Karsten, H. 1857. *Plantae Columbiana*. *Linnaea* 28: 271-273.
- Kuntze, O. 1891. *Revisio Generum Plantarum* 2: 725-737. Leipzig.
1898. *Revisio Generum Plantarum* 3: 321-324.
- Linden, J. 1881. *Plantes Introduites et Mises pour la Premiere Fois dans le Commerce. L'Illustr. Horticole* 28: 15-16, 31-32.
- Martius, C. F. P. von. 1819. *In Schrank, F., Flora* 2: 452.
1824. *Hist. Nat. Palm* 2: 29-90.
1826. *Hist. Nat. Palm.* 2: 91-144.
1844. *Palmetum Orbignianum* 7: 1-140. *In d'Orbigny, Voyage dans l'Amerique meridionale, Paris.*
1853. *Hist. Nat. Palm.* 3: 315-350.
- Plumier, C. 1703. *Nova Plantarum Americanarum Genera.* pp. 1-3, t. 1. Paris.
- Spruce, R. 1871. *Palmae Amazonicae, sive Enumeratio Palmarum in Itinero suo per regiones Americae aequatoriales lectarum.* *Journ. Linn. Soc.* 11: 65-175.
- Stafleu, F. A. et al. 1972. *International Code of Botanical Nomenclature as adopted by the XI International Botanical Congress, Seattle. Aug.-Sept. 1969.* 426 pp. Utrecht.
- Wallace, A. R. 1853. *Palm trees of the Amazon and their uses.* 129 pp., 48 plates. London.
- Wendland, H. 1878, in Kerchove de Denterghem, O. *Les Palmiers-Histoire Iconographique. etc.* 348 pp. Paris.
- Wessels Boer, J. G. 1965. *The Indigenous Palms of Suriname.* 172 pp. Leiden.
1972. *Clave Descriptiva de las Palmas de Venezuela.* *Acta Bot. Venez.* 6: 299-362. (An additional manuscript with descriptions and synonymy of the taxa mentioned above was prepared by Wessels Boer, but never published.)